

Most of Sir Armand Ruffer's active life was spent in reorganising, making efficient, and putting on a proper scientific basis the various bodies mentioned above, in which he was the ruling spirit; but in addition to this he carried out researches on, and extending over, a number of subjects. As a pupil of Metchnikoff, it was fitting that his earliest research work should have been on phagocytosis, on which he published, in 1890, a paper which is still valuable. He then turned his attention to the still baffling subject of cancer and set himself to try to solve the vexed question of the various cell-inclusions found in the lesions of this disease, which he considered to be of parasitic origin. As a member of the Indian Plague Commission, he did work on plague which was of great use to him later in his administrative and preventive work in Egypt. Besides the bacteriological and serological research, in connection with the quarantine work, which was done in his laboratory, and of which a good deal was new, he published several papers on the pathological lesions found in mummies, of considerable importance with regard to the history and distribution of diseases; and he collected a large quantity of material on this subject which is not yet published.

As a colleague he was ideal, ever ready to help and to advise, and never thinking of himself; and he was one who had the truest, kindest, and most appreciative affection for his many friends.

H. G. P.

NOTES.

THE long-deferred Arctic expedition of Mr. Roald Amundsen seems at last to be taking definite shape. This is the expedition which Amundsen abandoned in 1910, when he sailed instead for the Antarctic on his successful conquest of the South Pole. The plans have been modified in detail, and no longer include the use of Nansen's *Fram*, which has been condemned, but the general scheme probably remains the same. Amundsen's original intention was to enter the Arctic Ocean by Bering Strait, to traverse the unknown Beaufort Sea and force his vessel into the polar pack. He intended to allow his vessel to be frozen in and to drift with the ice across the polar basin, eventually reaching the open sea, in four or five years, between Greenland and Spitsbergen. In this respect the expedition is to be on the lines of Nansen's successful drift in the *Fram*, but by entering the ice further east than Nansen, Amundsen hopes to drift across the middle of the polar basin through quite unknown regions. Research in meteorology, oceanography, and biology will be pursued all the time, and the expedition will be accompanied by several aeroplanes for reconnaissance work. Amundsen has recently returned to Norway from America, where he has been arranging about these machines and receiving instruction in flying. It is announced that the Norwegian Storting has voted 11,000*l.* towards the cost of the expedition. In 1914 a grant of 4000*l.* was promised by the National Geographic Society of Washington.

THE recent debate in the House of Commons on the Air Board vote has done much to explain the precise functions of the Board, and its relation to the aeronautical industry. Major Baird pointed out to those who were dissatisfied with the results of the work of

the Board that it was necessary to proceed cautiously and to avoid rash experiments which might seriously affect the supply of machines to meet the demand at the front. In the debate which followed Major Baird's statement the usual criticisms were levelled at the Government machines which are being supplied to the Services, and it was asked whether more efficient machines could not be obtained in large numbers. The prevailing impression as to the inefficiency of these Government machines is entirely unfounded, and a statement made to the effect that the Air Board will consider the Royal Aircraft Factory and private firms on equal terms as regards the development of new types of machine should satisfy anyone that a firm claiming to produce a better machine than the official type will have a fair hearing before the Board. The formation of a new committee, under Lord Northcliffe, to investigate the possibility of using surplus machines and pilots for commercial purposes after the war should produce some interesting results. It is certainly high time that the possible uses of aircraft when peace returns should be seriously considered. At the conclusion of the war there will be many aircraft factories possessing expensive plant for the production of machines, and this plant may easily be wasted when the demand for military and naval machines becomes smaller. The work of the Air Board has already proved of great value in centralising and controlling the production of war machines, and there seems no reason why equally good work should not be done in peace time to advance the commercial side of aeronautics.

UNDER the title of "Science in Russia" a new reference-book will be published in the present year, composed of two parts: (a) an index of all scientific institutions, societies, and higher schools in Russia; (b) an index of all persons working in these institutions and of private scientific workers. It will thus include in the first part the particulars hitherto supplied (but very incompletely as to Russia) by the "Minerva Jahrbuch"; while the second part will be similar to "Who's Who in Science," but will give, at least for 1916, not so much information about each individual. The difficult task of collecting the necessary material is already well in hand. The undertaking has been brought, through the Russian newspapers, to the knowledge of all those interested, and special forms are being supplied to the institutions and societies, many of which have already been returned with the necessary particulars. The work has been taken in hand by the Academy of Sciences of Petrograd and the scientific periodical *Priroda* (Nature) of Moscow. "Science in Russia" for 1916 will be edited by Prof. V. N. Benešević, and published jointly by the Academy and the journal *Priroda* in the latter part of this year. It will be issued annually. This publication will supply a long-felt need, as up to the present the only work of reference containing any information about the scientific institutions of Russia as a whole has been "Minerva." "Science in Russia" will help towards an exact evaluation of Russian scientific forces and activity, and will constitute an important step towards the promotion of closer scientific relations with the Allied countries.

In London, and probably at many other places in England, April was colder than any corresponding month for the last sixty years or more. Dr. H. R. Mill contributed some details of the exceptional cold weather to the *Times* of May 3. The mean temperature at Camden Square is given as 43.1°, or 5° below the average; the mean maximum was 52.6°, and the mean minimum, 34.6°. The arithmetical mean of

maximum and minimum values is 43.6° . At Camden Square, April, 1860, was almost equally cold; the mean temperature was 43.9° , and the mean minimum 35.3° . In 1888 the mean maximum temperature in April was 52.4° , which was equally cold for the daytime. The Greenwich records for the last seventy-six years do not show a lower April mean, from maximum and minimum temperatures, than 44.3° , which occurred in 1887 and 1908, so that April this year was lower than previous records by 1° . The lowest April mean temperature from the hourly observations is 43.3° in 1860, and in 1879 and 1888 the mean was 43.5° . At Camden Square the mean deficiency of temperature for the five months December, 1916, to April, 1917, was 3.6° , each month being colder than the normal. The same series of observations shows 1878-79 to be correspondingly cold, whilst for 1890-91 the mean temperature for the five months was lower, and 4° less than the average. At Greenwich the coldest corresponding five months also occurred in 1890-91, when the mean was 37.6° , and 4° below the average. Other low mean temperatures for corresponding periods were 37.9° in 1878-79; 38.0° in 1844-45; 38.5° in 1846-47; 38.6° in 1854-55; 38.7° in 1887-88; 39.2° in 1885-86; and 39.5° in 1894-95.

THE Ontario Nickel Commission, appointed by the Ontario Government on September 9, 1915, to investigate the resources of the province in connection with nickel and its ores, has recently presented its report, of which a summary has reached this country. The Commissioners are the chairman, Mr. G. T. Holloway, an English metallurgist; Dr. W. G. Miller, the provincial geologist of Ontario; Mr. McGregor Young, a Toronto barrister; and Mr. T. W. Gibson, Deputy Minister of Mines, who acted as secretary. In order that the report might be placed before the Legislature at the earliest possible date, 150 advance copies were struck off without the last chapter, which is a bibliography of nickel, and the index. The report proper contains more than 600 pages, and is well illustrated with cuts, diagrams, and maps. The Commissioners print a summary of the report and their conclusions on the main points of the investigation at the forefront of the volume. After references to the various countries they visited, including the United States of America, Great Britain, France, Norway, Cuba, Australia, and New Caledonia, and to numerous mines, works, plants, smelters, etc., on both sides of the Atlantic, and also to their interviews with Mr. Bonar Law, then Secretary of State for the Colonies, they address themselves to the two questions which have been uppermost in the various discussions concerning Ontario's nickel industry during the last twenty-five years, viz.:—(1) Can nickel be economically refined in Ontario? and (2) are the nickel deposits of Ontario of such a character that this province can compete successfully as a nickel producer with any other country? The Commissioners without hesitation answer both these questions in the affirmative. The full report will be studied with much interest by metallurgists in this country.

THROUGH the death of Major P. G. Bailey in action on April 26 another scientific career of promise has been cut short. Educated at Dulwich, he entered Clare College as an exhibitor in 1905. Three years later he graduated with first class honours in the Natural Sciences Tripos. Though he passed an examination for the Eastern Civil Service, he felt that he had a bent towards research work, and instead of taking up the appointment offered he went through the agricultural course at Cambridge. Genetics attracted him; he became a Development Research scholar, and was soon immersed in animal breeding. One of the investigations on which he was engaged

was that of the inheritance of wool characters in sheep, a preliminary account of which (with F. L. Engledow) appeared in the *Journal of Agric. Science* for September, 1914. It was with the idea of gaining further experience that he accompanied the British Association to Australia in 1914. He was also busy with investigations on poultry and rabbits, the first-fruits of which appeared in a paper (with R. C. Punnett) "On the Inheritance of Size in Poultry" (*Journ. Genetics*, vol. iv., 1914). The outbreak of war found him in Australia. On his return he obtained a commission in the Royal Field Artillery, and had been at the front for more than two years before his death. Bailey was a careful and conscientious worker, with a great reserve of quiet enthusiasm. He brought to his work the straightforward honesty which characterised him in the affairs of life. He had the intellectual strength to recognise facts and the courage to face them, endowments which would have carried him far in the line of his choice. Though rather shy and diffident, he had a great charm of manner, and for those who knew him well his going has made a grievous gap.

At the Royal Society on Thursday last the fifteen selected candidates, whose names were given in *NATURE* of March 1, were elected by ballot fellows of the society.

THE Bakerian lecture of the Royal Society will be delivered by Mr. J. H. Jeans on May 17 upon the subject of the configuration of astronomical masses and the figure of the earth.

PROF. VICTOR GRÉGOIRE (Louvain), Prof. T. H. Morgan (New York), and Prof. Hans Schinz (Zürich) have been elected foreign members of the Linnean Society.

THE Pereira prize of the Pharmaceutical Society has been awarded to Miss Ivy Roberts, and the silver and bronze medals of the society have been awarded respectively to Mr. H. Jephson and Miss Doris Gregory.

SIR WILLIAM OSLER will deliver the annual oration of the Medical Society of London in the rooms of the society, 11 Chandos Street, Cavendish Square, W.1, on Monday next, May 14. His subject will be "The Anti-Venereal Campaign."

GENERAL G. W. GOETHALS has, we learn from *Science*, notified Governor Edge, of New Jersey, that he will accept the position of State engineer, created under a special Act during the present session of the Legislature. General Goethals will have supervision over the projected system of highways, which will cost about 3,000,000*l*.

DURING the evening of May 1 a great earthquake was registered in European observatories. In Italy seismographs continued in motion for three and a half hours. Father Alfani estimates the distance of the origin from Florence at about 7000 miles, and suggests the Pacific coast of South America as the seat of the disturbance.

THE second Sydney Ringer memorial lecture, which is delivered biennially, will be given by Prof. A. R. Cushny at University College Hospital Medical School on Friday, May 25. The subject will be "Digitalis and Auricular Fibrillation." The lecture will be open to all qualified medical practitioners and medical students.

THE Angrand prize of the Bibliothèque Nationale of Paris, of the value of 5000 francs, is to be awarded in 1918 for the best work published during 1913-17 on the pre-Columbian history, ethnography, archæology,

or linguistics of the American aborigines. Ten copies of each of the competing essays should be sent to the Secrétariat of the Bibliothèque Nationale, Paris, before January 1 next.

FOR the third year in succession, the war conditions make it impossible for the British Medical Association to hold the usual annual scientific meeting. The council announces therefore, that arrangements have been made to hold the annual representative meeting in London on Thursday, July 26, and the annual general meeting on Friday, July 27. It is recommended that Sir T. Clifford Allbutt be re-elected president of the association for 1917-18.

THE subject of the next triennial prize of the Royal College of Surgeons of England (consisting of the John Hunter medal in gold, or a medal in bronze and the sum of 50*l.*) will be "The Development of the Hip-joint and the Knee-joint of Man." The subjects of the Jacksonian prize for 1917 and 1918 are respectively "The Causation, Diagnosis, and Treatment of Traumatic Aneurysm, including Arterio-venous Aneurysm," and "Injuries and Diseases of the Pancreas and their Surgical Treatment."

AT the meeting of the Zoological Society on May 1 the secretary, Dr. Chalmers Mitchell, announced with the deepest regret that Mr. Henry Peavot, the society's librarian and clerk of publications, had been killed in action. Mr. Peavot entered the service of the society in 1896, and, after passing through various departments, was appointed assistant librarian and clerk of publications in 1908, and was promoted to the post of librarian and clerk of publications in 1912. In every way he had gained the esteem and regard of the scientific fellows of the society, and was one of the most valuable and competent members of the society's staff.

THE death is announced, in his fifty-ninth year, of Dr. H. W. Conn, professor of biology at Wesleyan University, Middletown, Connecticut, since 1889. He was for several years bacteriologist to the Storrs Experimental Station, and director of the Cold Spring Harbour Biological Laboratory and the Connecticut State Board of Health Laboratory. In 1902 Dr. Conn was president of the American Society of Bacteriologists. He was a specialist in the bacteriology of dairy products, and the author of more than 150 scientific memoirs.

HAVING in mind the remarks made in the article on the position and prospects of professional chemists (*NATURE*, March 29) with regard to the conditions of service offered to qualified temporary assistants in the inspection department at Woolwich, we are glad to learn that such appointments are now being made on a definite salary basis, commencing with a minimum of 175*l.* per annum. We feel that in this there is some justification for our hope that under the Ministry of Munitions the services of scientific men will meet with more enlightened appreciation.

AT the annual banquet of the U.S. National Academy of Sciences held on April 17 the Henry Draper gold medal was presented to Prof. A. A. Michelson, of the University of Chicago, for his numerous and important researches and contributions to physics. Prof. Michelson's major work includes the precise determination of the velocity of light; the study of ether drift; the determination of the length of the international standard meter in terms of light waves; the measurement of tides in the body of the earth, and the invention of several very delicate and

exact scientific instruments of prime importance in the study of light. Dr. S. W. Stratton, director of the U.S. Bureau of Standards, was awarded the academy medal for eminence in the application of science to the public welfare, for his services in introducing standards into the practice of technologists in the United States.

THE American Museum of Natural History has sent Dr. H. J. Spinden, of its department of anthropology, on a three months' tour in Central America for the purpose of making researches in the interests of the textile industry. He will start in Guatemala and extend his investigations to Western Honduras, Salvador, and Nicaragua. In these countries are many groups of Indians whose costumes are not only picturesque, but have many details of construction which, it is thought, might be successfully adapted in the United States. Dr. Spinden, in addition to obtaining examples of designs, will learn the details of the art of weaving as there practised, and will study the dyestuffs used by the native artisans. He will also obtain information concerning the native food products, and will collect specimens of them for display in the "preparedness" exhibit which the museum now has under way.

THE *American Museum Journal* for February contains a preliminary report by Mr. N. C. Nelson on the excavation of one of the finest and best preserved examples of prehistoric Pueblo architecture in the south-west. The ruin is situated in Animas Valley, in north-western New Mexico, a few miles below the Colorado boundary, and directly across the river from the town of Aztec. It was at once a great house and a great village, its inhabitants forming a closely organised community. This co-operation of work seems to have resulted from the need of providing works of irrigation, or, perhaps, also from the necessity of defence against encroaching nomads. The report is illustrated by good plans and photographs, and the account of the further progress of this important excavation will be awaited with interest.

A VALUABLE report on child mortality at ages 0-5 years has been issued by the Local Government Board (*Cd.* 8496, 1916). During the four years 1911-14, 575,078 deaths occurred in England and Wales under five, or more than a quarter (28.2 per cent.) of the total deaths at all ages during these years. In some of the 274 urban areas specially considered in this report the death-rate was three times as high as in some others. While it is true that even in the most backward of the towns and boroughs much saving of child-life has already been secured, there is evidently still a large mass of preventable mortality. The centres of excessive child mortality are those in which the chief industries of the country are carried on. In degree of ignorance there is little, if any, difference between the wives of wage-earners and the wives of men belonging to other classes. The important conclusion is formulated that the difference between these two classes, apart from the handicap of the former in respect of housing, food supply, and sanitation, in the main is one of ability to secure the assistance required in the various contingencies of maternity and early childhood.

A WELL-ILLUSTRATED account of the cane-borer beetle in Hawaii by F. Muir and O. H. Swezey comes from the Experiment Station of the Hawaiian Sugar-planters' Association (*Entom. Bulletin* 13). The life-history is described in detail, and much stress is laid on the importance of natural enemies in controlling the pest.

A. L. QUAINANCE and A. C. Baker continue their studies of "white flies" (Aleyrodinae) in a long paper in the Proceedings of the U.S. National Museum (vol. li., pp. 335-445). Many genera and species from all parts of the world are described, their structure being excellently illustrated in forty-six plates and several text figures.

WE have received the twenty-eighth and twenty-ninth reports of the State entomologist (Dr. S. A. Forbes) on the "Noxious and Beneficial Insects of Illinois" (1915-16). The former of these is devoted chiefly to the San Jose scale, and to a description of the result of extensive experiments towards the destruction of the corn-root aphid, an insect very harmful to maize. The latter contains a valuable paper on the life-history of the codling moth (*Carpocapsa pomonella*) in Illinois; from the diagrams given it appears that the larvæ of the autumn generation are far more abundant in the locality studied than those of the spring brood.

MR. J. ARTHUR HUTTON has published a report of a lecture delivered to the Manchester Anglers' Association dealing with proposals for the nationalisation of the salmon fisheries. He suggests, as remedial measures counteracting the deterioration that is in progress, the total abolition of unrestricted fishing; the control of the rivers, preferably by a separate Ministry of Fisheries; a thorough topographical and statistical survey; and strict control of the sources and means of pollution wherever these can be avoided or minimised. Artificial culture he regards as, at least, a very promising method of largely increasing the yield of the rivers, and an expensive and large-scale system of hatching and distribution of larvæ is earnestly recommended.

THE snares and pitfalls which beset those who venture to "restore" extinct animals, even where the remains are fairly complete, form the theme of an extremely interesting article by Prof. Henry Fairfield Osborn in the *Museum Journal* for January, which has just reached us. The spirited picture, with which we have now become familiar, of that very agile dinosaur, *Ornithomimus*, seizing an *Archæopteryx* in mid-air is now, in the light of further discoveries, regarded as improbable. And we venture to predict a like fate for the restoration of the yet more remarkable dinosaur described under the name *Struthiomimus*. The restorations given here certainly do not carry conviction. This issue also contains an article on the autumn migrations of butterflies, which demands careful study from all who are interested in the phenomena of migration.

THE secretary to the International Commission on Zoological Nomenclature has recently issued, as Circular Letter No. 35, a list of generic names, chiefly Linnean, proposed for inclusion in the "Official List of Zoological Names." These names are those in general use, and each has been checked to see that it conforms with the rules of nomenclature. The names are: One of Protozoa, one of Coelentera, two of Trematoda, five of Cestoda, one of Cirripedia, one of Tunicata, and twenty-eight of Pisces. The genotype of each is quoted. Anyone interested who has not received a copy of the list may obtain one from the secretary, 25th and East Streets, N.W., Washington, D.C., or from the British Commissioners, Dr. E. Hartert, Tring; Dr. W. E. Hoyle, National Museum of Wales, Cardiff; and Dr. F. A. Bather, British Museum (Natural History).

THE deplorable neglect among us of all forms of scientific investigation which do not promise imme-

diate "economic" results formed the subject of an admirable presidential address by Prof. G. H. Carpenter to the Dublin Naturalists' Field Club in December last. In the course of this address, which appears in the *Irish Naturalist* for April, Prof. Carpenter reminded his audience of the lasting benefits to the human race which have resulted from what is, so mistakenly, called "pure science." In this connection, he proceeded to show how the study of the lower forms of life, pursued solely for the sake of knowledge, may unexpectedly prove of immense practical importance. By way of illustration, he cited some recently discovered changes of habit in certain collembola, wire-worms, and other insect pests which had adversely affected the newly introduced tobacco crop in Ireland.

La Nature for April 21 contains an article on "L'hiver 1917 dans la Scandinavie," by M. Charles Rabot. The author points out that it is not only in France that the winter has been of unusual severity; it has been equally cold in Norway and in the south of Sweden as well as in Denmark, where it has not been so severe for twenty years. At Christiania the period of cold lasted about three months, commencing December 23 and continuing to the middle of March. From December 23 to February 9 the thermometer remained below zero Centigrade, and since the establishment of the Norwegian Meteorological Service in 1861, so long a period of low temperatures has not been previously observed. The mean temperature for January was -10.9°C. , which is 6.9° below the normal, and is the coldest January for fifty-six years. The absolute minimum temperature has not been excessive. February was also very cold. The cold was accompanied by copious falls of snow, occurring at times over the whole of Norway. At Vuonatjviken, a meteorological station situated 500 m. above sea-level, in the most northern part of Sweden, the thermometer registered 55°C. below zero. Much ice obstructed navigation on the coasts and in the fjords, and the ice paralysed the operations of the submarines in these parts throughout the winter, whilst drifting mines were exploded by coming into contact with the large masses of ice. For twenty-two years the sea in southern Scandinavia has never been so full of ice.

THE December, 1916, issue of *Terrestrial Magnetism and Atmospheric Electricity* contains a report by Drs. W. Knoche and J. Laub on the electrical measurements made at Boa Vista, Brazil, during the total eclipse of the sun on October 10, 1912. The eclipse had no effect on the radio-activity of the air, or on the fall of potential upwards, or on the propagation of electric waves. The number of ions per c.c. was considerably diminished, the negative ions more seriously than the positive. The mobilities of the ions showed sharp maxima about the middle and the end of the eclipse, the ratio of the mobility of the negative to that of the positive ion having a sharp maximum about half-way between totality and end. The conductivity due to both ions was a minimum near totality and a maximum near the end. Curves are given showing the variation of each element observed during the whole eclipse.

AT a recent meeting of the Institution of Petroleum Technologists an interesting paper on the little-known oilfields of Assam was read by Mr. H. S. Maclean Jack. These oilfields are being worked by the Assam Oil Company, which, after eighteen years of strenuous labours, has at last reached the stage of active production. The paper describes the great diffi-

culties met with, first in locating, and afterwards in drilling, oil-wells, the latter having been to some extent overcome by the use of the American rotary drill. The petroleum occurs in Assam in intermittent deposits, situated in loose sands; the gas pressure is very high, and the oil when first struck gushes out with much violence; the wells do not produce any very great quantities, but keep up a reasonably steady flow for considerable periods. The crude oil is very dark, and has a density of 0.856; it is distilled in the ordinary way in continuous boiler stills, the products being crude benzene, intermediate kerosene, ordinary kerosene, and a residue which is distilled to dryness in pot-stills. These latter produce "batching" oil, used for softening jute fibre; some lubricating and other heavy oils; a large proportion of paraffin wax, this being a hard wax with a melting point of 135° to 140° F.; and a coke, which is nearly pure carbon. The kerosenes supply the local demand, and are shipped also to Bengal, whilst the paraffin wax finds a market in all parts of the world.

Engineering for April 27 contains an interesting account, with illustrations, of a new machine-gun shop belonging to Messrs. Vickers. This shop had to be erected, equipped, and started up with great rapidity in order to meet the demands of our forces at the front. The floor area is nearly 2.5 acres, accommodating more than 1000 machines of specialised type, driven by electric power transmitted through 6000 ft. of line shafting and 40,000 ft. of machine belting, and yet actual manufacturing work was started within three calendar months of the date when the ground—a potato field—was first taken possession of, while in two months more the factory was in complete working order, and a steady supply of machine-guns was being dispatched to the front. More satisfactory still, the whole of the machining work in the manufacture of these machine-guns—one of the most intricate units of mechanical production—is carried out by women workers. In connection with this, it is of interest to note that many of our women workers have now got beyond the mere operation of automatic and semi-automatic machine tools, and are being trusted with work and machines formerly operated by skilled machine hands.

OUR ASTRONOMICAL COLUMN.

A NEW COMET (SCHAUMASSE).—The second new comet of this year was discovered at the Nice Observatory on April 25 by M. Schaumasse. The magnitude at the time of discovery was 9.5, and the comet is said to be increasing in brightness. A Copenhagen telegram announces that on April 27 the comet was observed at the Lick Observatory by Mr. Shane, its position at 16h. 1m. 3s., Lick Mean Time, being R.A. 23h. 7m. 40s., decl. $+11^{\circ} 36' 57''$. According to the *Times* of May 9, the following positions for Greenwich midnight have been calculated by J. Braae and J. Fischer-Petersen, Copenhagen:—

1917		R.A.		Decl.
		h.	m.	s.
May 9	...	23	32	0
16	...	0	21	0
20	...	1	54	0
22	...	3	25	55
24	...	5	16	30
26	...	6	44	42
28	...	7	39	49
				47 19

COMET 1917a (MELLISH).—The following continued ephemeris for Greenwich midnight has been received from J. Fischer-Petersen, Copenhagen:—

NO. 2480, VOL. 99]

1917	R.A.			Decl	Log <i>r</i>	Log Δ	Bright- ness.
	h.	m.	s.				
May 11	1	26	3	— 10 31.0	9.9677	0.1661	6.2
13	29	45		10 54.6			
15	33	20		11 17.0	0.0072	0.1825	6.5
17	36	48		11 38.5			
19	40	9		11 59.3	0.0422	0.1968	6.7
21	43	23		12 19.6			
23	46	30		12 39.6	0.0738	0.2093	7.0
25	49	31		12 59.4			
27	52	26		13 19.2	0.1024	0.2204	7.2
29	55	15		13 39.0			
31	1	57	57	13 58.9	0.1286	0.2300	7.3
June 2	2	0	33	14 19.0			
4	2	3	4	— 14 39.3	0.1527	0.2386	7.5

COMET 1916b (WOLF).—The following is a continuation of Prof. Crawford's ephemeris for Greenwich midnight, as given in the Lick Observatory Bulletin No. 289:—

1917		R.A.		Decl.	Log Δ	Bright- ness	
		h.	m.	s.			
May	10	...	20	55 38	+ 15 57	0.1646	
	11	...	20	58 4	21.9		
	12	...	21	0 29	38.1	0.1599	3.63
	13	...	2	54	15 54.2		
	14	...		5 19	16 10.1	0.1553	
	15	...		7 43	25.9		
	16	...		10 7	41.6	0.1507	3.85
	17	...		12 31	16 57.2		
	18	...		14 54	17 12.6	0.1462	
	19	...		17 17	27.9		
	20	...		19 39	43.1	0.1418	4.06
	21	...		22 1	17 58.1		
	22	...		24 23	18 12.9	0.1374	
	23	...		26 44	27.5		
	24	...		29 5	41.9	0.1330	4.28
	25	...		31 26	18 56.1		
	26	...		33 46	19 10.2	0.1287	
	27	...		36 5	24.1		
	28	...		38 24	37.7	0.1245	4.49
	29	...		40 42	19 51.1		
	30	...		43 0	20 4.3	0.1203	
	31	...		45 17	17.3		
June	1	...	21	47 34	+ 20 30.0	0.1162	4.71

THE AQUARIDS OF HALLEY'S COMET.—These meteors were perseveringly awaited on the mornings between about April 28 and May 7 by a number of observers, including Miss A. G. Cook, Mrs. F. Wilson, the Rev. J. C. W. Herschel, Mr. T. Hargreaves, Miss T. E. Gall, Mr. W. F. Denning, and others. The results were somewhat disappointing, though the weather proved favourable on the whole. Very few meteors of the Aquarid shower were seen. On May 1, at 14h., a fireball directed from a radiant at $50^{\circ}+71^{\circ}$ was recorded by Mrs. Wilson and Miss Gall, at Totteridge, and Miss Cook, at Stowmarket. It fell from a height of sixty-three to thirty-eight miles over the Channel, between Boulogne and Sussex. Another fireball was seen on the morning of May 7 from Totteridge, and this proved an Aquarid. From the collected observations it appears that the shower, though unusually scanty in numbers, was visible over the nine mornings from April 28 to May 7.

OSMOTIC PRESSURE.

THE theory that osmotic pressure is due to bombardment of the walls of the containing vessel by the particles of solute has met with considerable criticism, both from the chemical and physical sides (compare, e.g., van Laar, *Proc. Amsterdam Academy*, vol. xvii., p. 1241; vol. xviii., p. 184; abstracted in *NATURE*, March 16, 1916). However, at the discussion on osmotic pressure before the Faraday Society on May 1, with Sir Oliver Lodge in the chair, the kinetic